	Pimpri Chinchwad Education Trust's Pimpri Chinchwad College of Engineering

Assignment-03

Roll No:123M1H010
Name of Student: Harshal Bhamare **Submission Date:** 27 /09 /2024

1. Design a simple mobile application that displays user profile information. The profile includes a profile picture, user name, and a short bio. The UI should use different ViewGroups (LinearLayout, RelativeLayout, FrameLayout) to organize the layout. Experiment with different layout structures and ensure the profile image and text are aligned properly within the layout.

Solution:

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <FrameLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp">

        <ImageView
            android:id="@+id/profile_image"
            android:layout_width="120dp"
            android:layout_height="120dp"
            android:layout_gravity="center"
            android:src="@drawable/profile1"
            android:contentDescription="Profile Picture"
            android:scaleType="centerCrop"
            android:background="@drawable/profile1"/>

    </FrameLayout>

    <RelativeLayout
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:padding="16dp">

        <TextView
            android:id="@+id/user_name"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Tom Cruise "
            android:textSize="24sp"
            android:textStyle="bold"
            android:layout_alignParentTop="true"
            android:layout_centerHorizontal="true"
            android:paddingBottom="8dp" />

        <TextView
            android:id="@+id/user_bio"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="A short bio "
            android:textSize="16sp"
            android:layout_below="@id/user_name"
            android:layout_centerHorizontal="true"
            android:textColor="#666"
            android:paddingTop="8dp" />

    </RelativeLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:paddingTop="24dp">

        <TextView
````
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Contact Info:" android:textSize="18sp"
            android:textStyle="bold" android:paddingBottom="8dp"
            />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Email: tom@gmail.com"
            android:textSize="16sp" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Phone: 1234567890"
            android:textSize="16sp" />

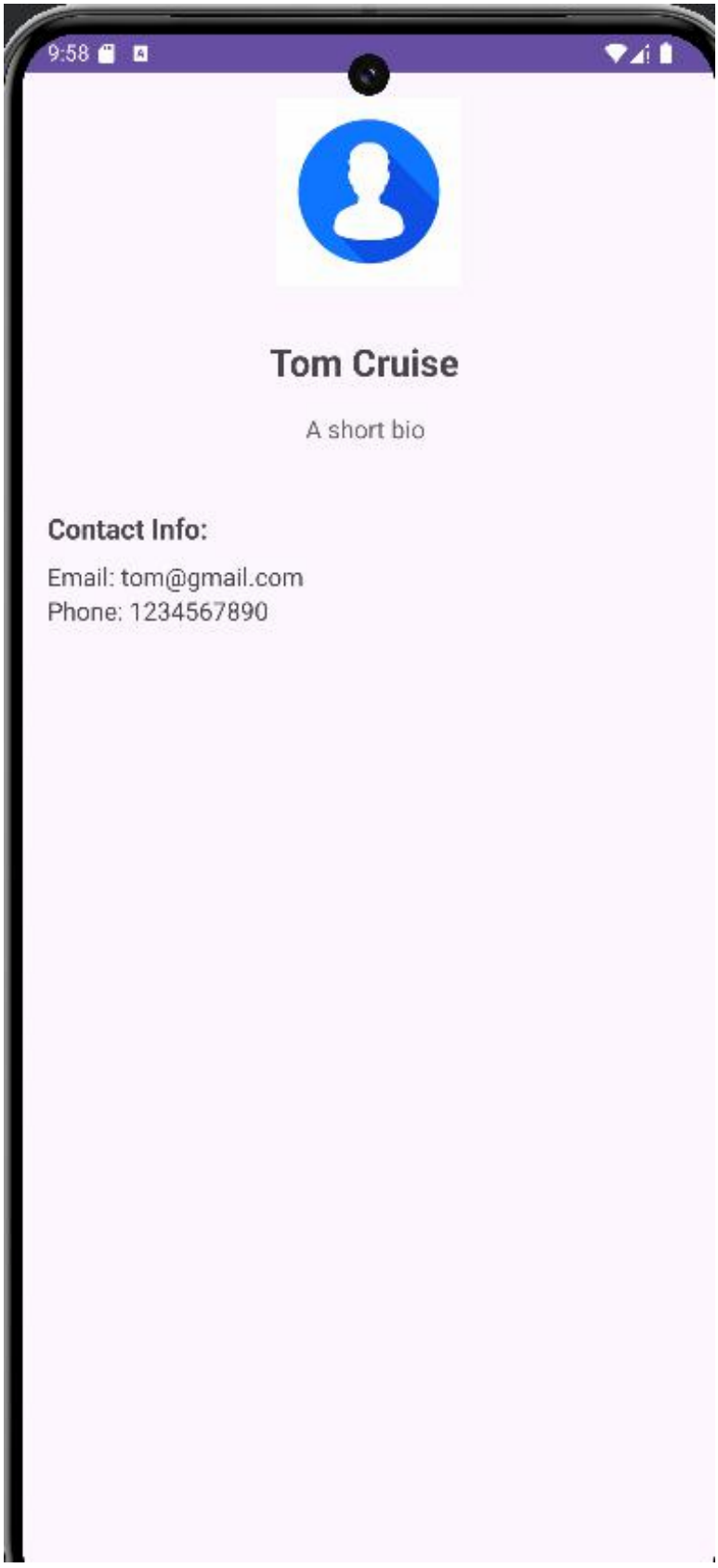
    </LinearLayout>
```
```

```
</LinearLayout>
```

Java code:

```java
package com.example.la3q1;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

Output:


9:58
Tom Cruise
A short bio
Contact Info:
Email: tom@gmail.com
Phone: 1234567890

2. Develop a user registration form for a mobile application. The form should collect the user's name, email, gender, favorite activities (using checkboxes), and country of residence (using a dropdown Spinner). Once the user fills in the details and clicks the "Submit" button, display the entered information in a confirmation TextView.

Solution:

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <EditText
        android:id="@+id/nameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name"
        android:inputType="text" />

    <EditText
        android:id="@+id/emailEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
        android:inputType="textEmailAddress" />

    <RadioGroup
        android:id="@+id/genderRadioGroup"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <RadioButton
            android:id="@+id/maleRadioButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
```

```
            android:text="Male" />

        <RadioButton
            android:id="@+id/femaleRadioButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Female" />

        <RadioButton
            android:id="@+id/otherRadioButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Other" />
    </RadioGroup>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">

        <CheckBox
            android:id="@+id/sportsCheckBox"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Sports" />

        <CheckBox
            android:id="@+id/musicCheckBox"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Music" />

        <CheckBox
            android:id="@+id/travelCheckBox"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Travel" />
    </LinearLayout>

    <Spinner
        android:id="@+id/countrySpinner"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit" />

    <TextView
        android:id="@+id/confirmationTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:paddingTop="16dp"
```

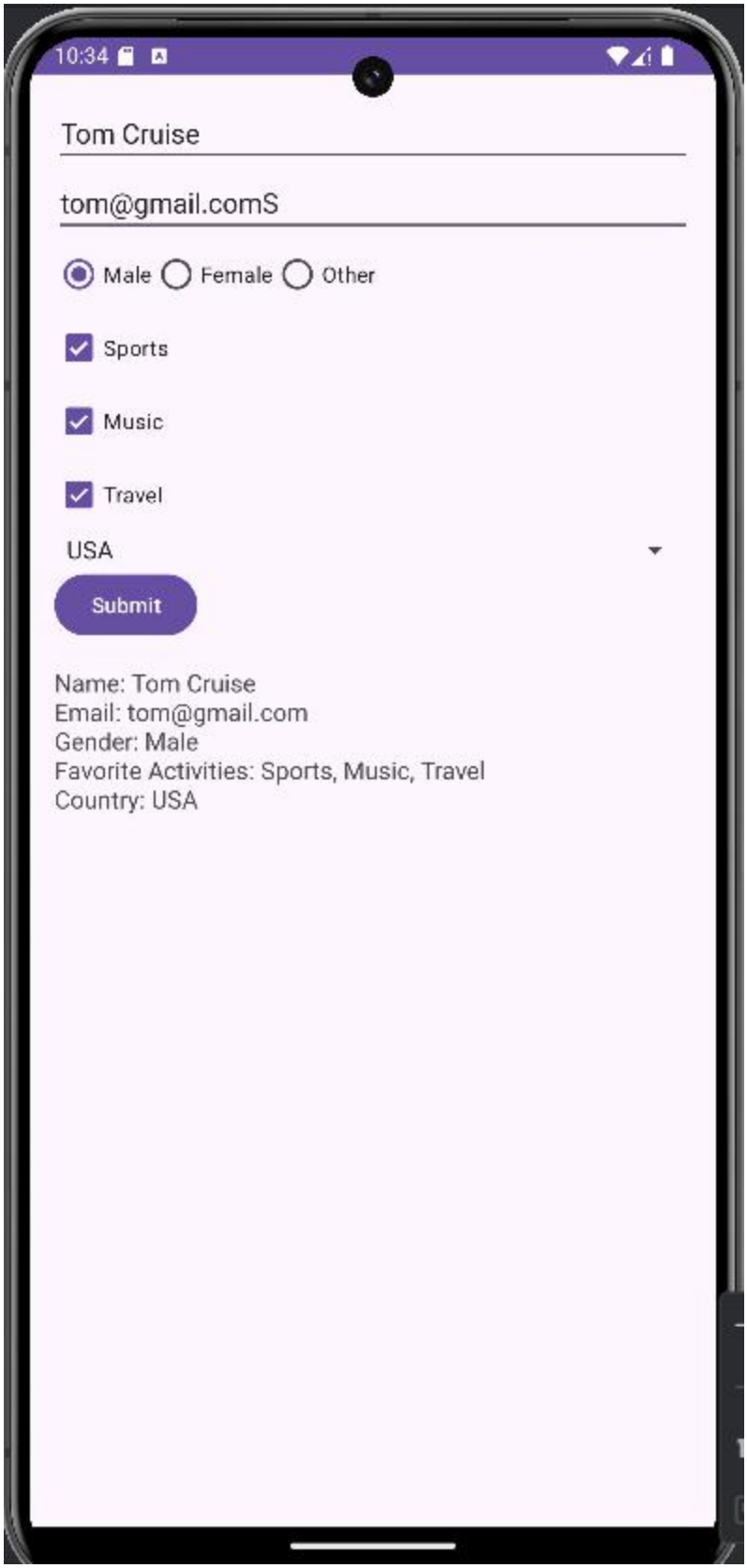
```
            android:textSize="16sp" />
</LinearLayout>
```

Java code:

```
package com.example.la3q2;

import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        final EditText nameEditText = findViewById(R.id.nameEditText); final EditText emailEditText =
        findViewById(R.id.emailEditText); final RadioGroup genderRadioGroup =
findViewById(R.id.genderRadioGroup);
        final CheckBox sportsCheckBox = findViewById(R.id.sportsCheckBox); final CheckBox musicCheckBox =
        findViewById(R.id.musicCheckBox); final CheckBox travelCheckBox =
        findViewById(R.id.travelCheckBox); final Spinner countrySpinner = findViewById(R.id.countrySpinner);
        final Button submitButton = findViewById(R.id.submitButton); final TextView confirmationTextView =
findViewById(R.id.confirmationTextView);

        String[] countries = {"Select Country", "USA", "Canada", "UK", "Germany", "France"};
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, countries);

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item) ;

        countrySpinner.setAdapter(adapter);

        submitButton.setOnClickListener(new View.OnClickListener() { @Override
            public void onClick(View v) {
                String name = nameEditText.getText().toString(); String email =
                emailEditText.getText().toString(); int selectedGenderId =
genderRadioGroup.getCheckedRadioButtonId(); RadioButton
                selectedGenderButton =
findViewById(selectedGenderId);
                String gender = selectedGenderButton != null ?
selectedGenderButton.getText().toString() : "Not Specified";
```

```
                        StringBuilder favoriteActivities = new StringBuilder(); if
                        (sportsCheckBox.isChecked())
favoriteActivities.append("Sports, ");
                        if (musicCheckBox.isChecked())
favoriteActivities.append("Music, ");
                        if (travelCheckBox.isChecked())
favoriteActivities.append("Travel, ");
                        if (favoriteActivities.length() > 0) { favoriteActivities.setLength(favoriteActivities.length() -
2);
                        }
                        String country = countrySpinner.getSelectedItem().toString();

                        String confirmationText = String.format(
                                                                "Name: %s\nEmail: %s\nGender: %s\nFavorite Activities:
%s\nCountry: %s",
                                name, email, gender, favoriteActivities.toString(),
country
                        );

                                confirmationTextView.setText(confirmationText);
                }
            });
    }
}
```

Output:


10:34
Tom Cruise
tom@gmail.comS
Male
Female
Other
Sports
Music
Travel
USA
Submit
Name: Tom Cruise
Email: tom@gmail.com
Gender: Male
Favorite Activities: Sports, Music, Travel
Country: USA

3. Create an application that displays a list of countries and their corresponding flags using a RecyclerView. Each list item should be custom-designed to include a country's name and its flag. The user should be able to scroll through the list, and clicking on any country name should display a toast with the selected country name.

Solution:

Xml code:

activity_main:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/recyclerView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:scrollbars="vertical" />

</LinearLayout>
```

item_country:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:padding="8dp">

    <ImageView
        android:id="@+id/countryFlag"
        android:layout_width="60dp"
        android:layout_height="60dp"
        android:layout_marginEnd="16dp"
        android:contentDescription="Country Flag" />

    <TextView
        android:id="@+id/countryName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="30sp"
        android:textColor="#000" />

</LinearLayout>
```

Java code:

MainActivity:

```
package com.example.la3q3;

import android.os.Bundle;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {

    RecyclerView recyclerView;
    CountryAdapter adapter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        recyclerView = findViewById(R.id.recyclerView);

        List<Country> countryList = getCountryList();

        adapter = new CountryAdapter(countryList, countryName -> {
            Toast.makeText(MainActivity.this, "Selected Country: " +
countryName, Toast.LENGTH_SHORT).show(); });
        recyclerView.setLayoutManager(new LinearLayoutManager(this));
        recyclerView.setAdapter(adapter);
    }

    private List<Country> getCountryList() { List<Country> countryList = new ArrayList<>();
        countryList.add(new Country("India", R.drawable.india)); countryList.add(new
        Country("United States", R.drawable.usa)); countryList.add(new Country("Brazil",
        R.drawable.brazil)); countryList.add(new Country("Canada", R.drawable.canada));
        countryList.add(new Country("Australia", R.drawable.australia));

        countryList.add(new Country("United Kingdom",
R.drawable.unitedkingdom));
        countryList.add(new Country("Mexico ", R.drawable.mexico)); countryList.add(new Country("South
        Africa", R.drawable.southafrica)); countryList.add(new Country("Argentina ", R.drawable.argentina));
        countryList.add(new Country("New Zealand", R.drawable.newzealand));

        countryList.add(new Country("Spain ", R.drawable.spain)); countryList.add(new Country("Italy ",
        R.drawable.italy)); countryList.add(new Country("South Korea", R.drawable.southkorea));
        countryList.add(new Country("Sweden ", R.drawable.sweden)); countryList.add(new
        Country("Netherlands ", R.drawable.netherlands)); return countryList;
    }
```

```
}
```

Country:

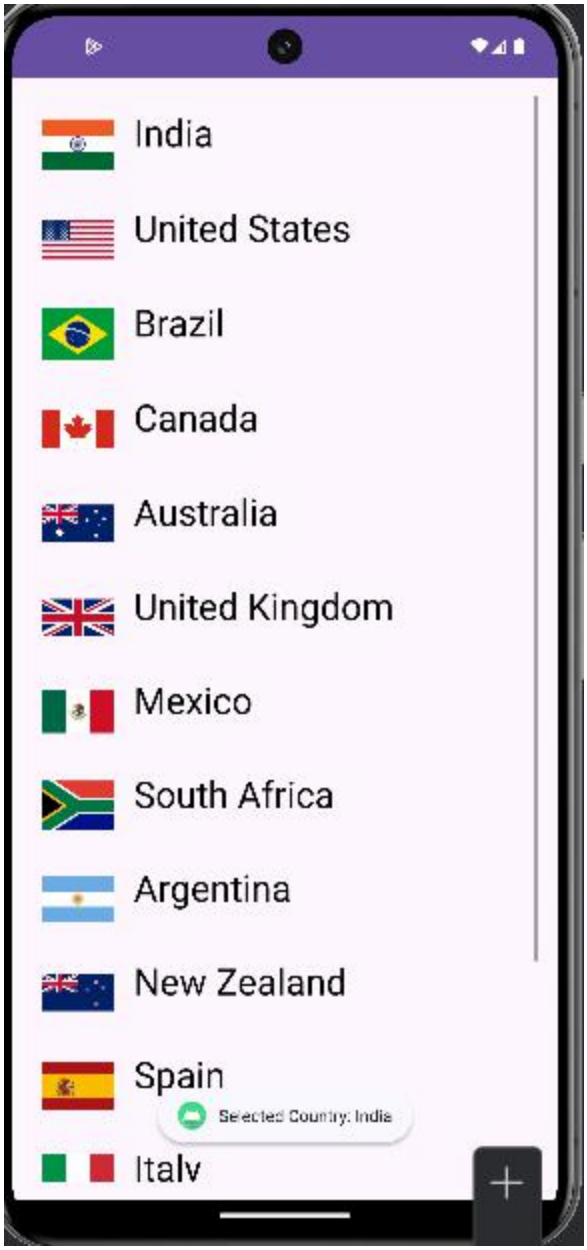
```
package com.example.la3q3;



public class Country {
    private String name;
    private int flagResId;

    public Country(String name, int flagResId) { this.name = name;
        this.flagResId = flagResId;
    }

    public String getName() {
        return name;
    }

    public int getFlagResId() {
        return flagResId;
    }
}
```

CountryAdapter:

```
package com.example.la3q3;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ImageView;
import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.recyclerview.widget.RecyclerView; import java.util.List;

public class CountryAdapter extends
RecyclerView.Adapter<CountryAdapter.CountryViewHolder> {

    private List<Country> countryList; private
    OnCountryClickListener listener;

    public CountryAdapter(List<Country> countryList, OnCountryClickListener listener) {
        this.countryList = countryList;
        this.listener = listener;
    }

    @NonNull
    @Override
    public CountryViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {
```

```
        View view =
LayoutInflater.from(parent.getContext()).inflate(R.layout.item_country, parent,
false);
        return new CountryViewHolder(view);
    }

    @Override
    public void onBindViewHolder(@NonNull CountryViewHolder holder, int position) {
        Country country = countryList.get(position);
        holder.countryName.setText(country.getName());
        holder.countryFlag.setImageResource(country.getFlagResId());

        holder.itemView.setOnClickListener(v ->
listener.onCountryClick(country.getName()));
    }

    @Override
    public int getItemCount() {
        return countryList.size();
    }

    public static class CountryViewHolder extends RecyclerView.ViewHolder { TextView countryName;
        ImageView countryFlag;

        public CountryViewHolder(@NonNull View itemView) {
            super(itemView);
            countryName = itemView.findViewById(R.id.countryName); countryFlag =
            itemView.findViewById(R.id.countryFlag);
        }
    }

    public interface OnCountryClickListener { void
        onCountryClick(String countryName);
    }
}
```

Output:



4. Design an event scheduling application where the user can select the date and time of an event. The app should allow the user to pick a date using a DatePickerDialog and a time using a TimePickerDialog. Once the user selects the date and time, display the event details (including the selected date and time) in a TextView.

Solution:

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <Button
        android:id="@+id/dateButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Select Date"
        android:layout_gravity="center_horizontal"
        android:padding="16dp" />

    <Button
        android:id="@+id/timeButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Select Time"
        android:layout_gravity="center_horizontal"
        android:padding="16dp" />

    <Button
        android:id="@+id/saveButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Save Event"
        android:layout_gravity="center_horizontal"
        android:padding="16dp" />

    <TextView
        android:id="@+id/eventDetailsText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:paddingTop="24dp"
        android:text="Event details will be displayed here"
        android:textSize="18sp" />

</LinearLayout>
```

Java code:

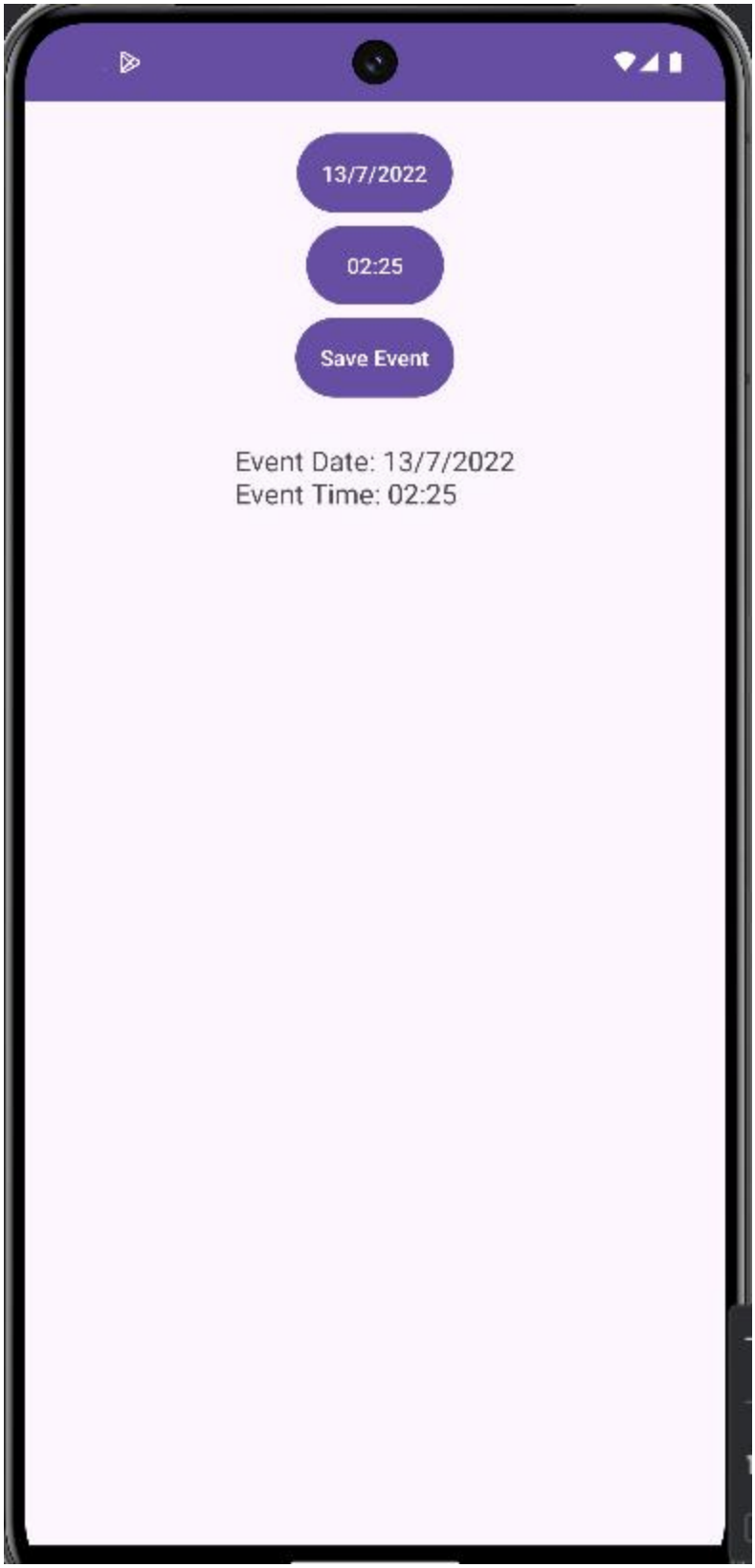
```
package com.example.la3q4;

import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
```

```
import androidx.appcompat.app.AppCompatActivity; import
java.util.Calendar;

public class MainActivity extends AppCompatActivity {
```

```
    Button dateButton, timeButton, saveButton; TextView
    eventDetailsText;
    int selectedYear, selectedMonth, selectedDay, selectedHour, selectedMinute;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        dateButton = findViewById(R.id.dateButton); timeButton =
        findViewById(R.id.timeButton); saveButton = findViewById(R.id.saveButton);
        eventDetailsText = findViewById(R.id.eventDetailsText);

        dateButton.setOnClickListener(new View.OnClickListener() { @Override
            public void onClick(View v) {
                showDatePickerDialog();
            }
        });

        timeButton.setOnClickListener(new View.OnClickListener() { @Override
            public void onClick(View v) {
                showTimePickerDialog();
            }
        });

        saveButton.setOnClickListener(new View.OnClickListener() { @Override
            public void onClick(View v) {
                if (selectedYear != 0 && selectedHour != 0) {
                    String eventDetails = "Event Date: " + selectedDay + "/" + (selectedMonth + 1) + "/"
+ selectedYear +
                            "\nEvent Time: " + String.format("%02d:%02d", selectedHour,
selectedMinute);
                    eventDetailsText.setText(eventDetails);
                } else {
                    Toast.makeText(MainActivity.this, "Please select both date and time!",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }

    private void showDatePickerDialog() {
        final Calendar calendar = Calendar.getInstance(); int year =
        calendar.get(Calendar.YEAR); int month = calendar.get(Calendar.MONTH);
        int day = calendar.get(Calendar.DAY_OF_MONTH);

        DatePickerDialog datePickerDialog = new DatePickerDialog(this, (view, year1, month1,
                dayOfMonth) -> {
                    selectedYear = year1;
                    selectedMonth = month1;
                    selectedDay = dayOfMonth;
```

```
                        dateButton.setText(selectedDay + "/" + (selectedMonth + 1) + "/" + selectedYear);
                    }, year, month, day);
            datePickerDialog.show();
        }

        private void showTimePickerDialog() {
            final Calendar calendar = Calendar.getInstance(); int hour =
            calendar.get(Calendar.HOUR_OF_DAY); int minute =
            calendar.get(Calendar.MINUTE);

            TimePickerDialog timePickerDialog = new TimePickerDialog(this, (view, hourOfDay, minute1)
                    -> {
                        selectedHour = hourOfDay;
                        selectedMinute = minute1;
                        timeButton.setText(String.format("%02d:%02d", selectedHour,
selectedMinute));
                    }, hour, minute, true);
            timePickerDialog.show();
        }
}
```

Output:


13/7/2022
02:25
Save Event
Event Date: 13/7/2022
Event Time: 02:25

5. Create a media player application that allows the user to play both audio and video files. The app should display a static image using an ImageView and load an image from a URL using the Glide or Picasso library. Implement buttons for playing an audio file and playing a video file from a URL or local storage. Provide basic controls like play and pause.

Solution:

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="match_parent"
        android:layout_height="200dp"
        android:scaleType="centerCrop"
        android:src="@drawable/staticimage" />

    <Button
        android:id="@+id/loadImageButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Load Image from URL" />

    <Button
        android:id="@+id/playAudioButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Play Audio" />

    <Button
        android:id="@+id/pauseAudioButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Pause Audio" />

    <VideoView
        android:id="@+id/videoView"
        android:layout_width="match_parent"
        android:layout_height="200dp"
        android:layout_marginTop="16dp" />

    <Button
        android:id="@+id/playVideoButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Play Video" />

    <Button
```

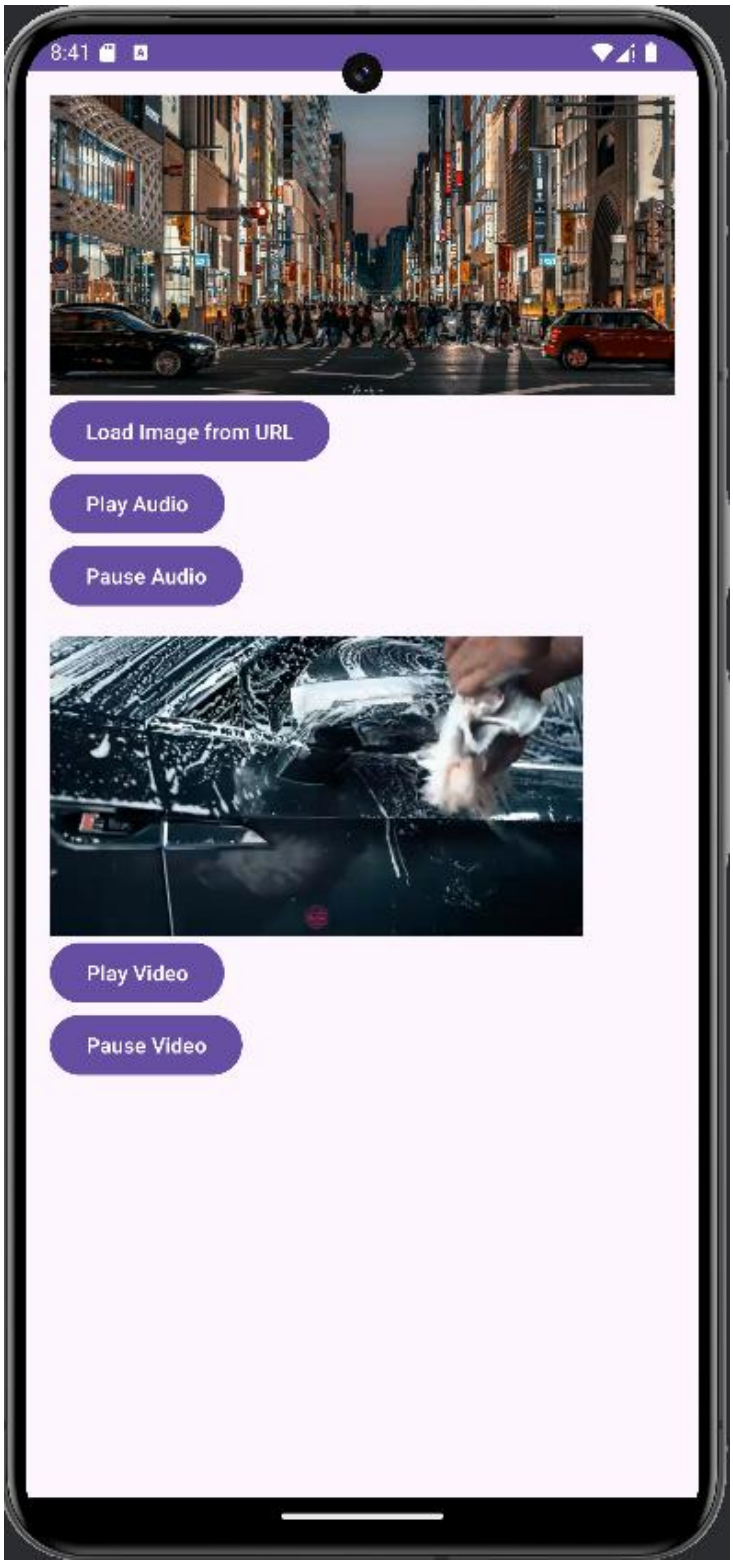
```
            android:id="@+id/pauseVideoButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Pause Video" />

</LinearLayout>
```

Java code:

```
package com.example.la3q5;

import android.media.MediaPlayer;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.Toast;
import android.widget.VideoView;
import androidx.appcompat.app.AppCompatActivity; import
com.bumptech.glide.Glide; import java.io.IOException;

public class MainActivity extends AppCompatActivity {

    private ImageView imageView;
    private Button loadImageButton, playAudioButton, pauseAudioButton, playVideoButton,
pauseVideoButton;
    private MediaPlayer mediaPlayer;
    private VideoView videoView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        imageView = findViewById(R.id.imageView); loadImageButton =
        findViewById(R.id.loadImageButton); playAudioButton =
        findViewById(R.id.playAudioButton); pauseAudioButton =
        findViewById(R.id.pauseAudioButton); playVideoButton =
        findViewById(R.id.playVideoButton); pauseVideoButton =
        findViewById(R.id.pauseVideoButton); videoView = findViewById(R.id.videoView);

        loadImageButton.setOnClickListener(v -> loadImageFromUrl());

        playAudioButton.setOnClickListener(v -> playAudio());
        pauseAudioButton.setOnClickListener(v -> pauseAudio());

        playVideoButton.setOnClickListener(v -> playVideo());
        pauseVideoButton.setOnClickListener(v -> pauseVideo());
    }

    private void loadImageFromUrl() {
```

```
        String imageUrl =
"https://drive.google.com/uc?export=download&id=1BJzZaJW8SGz_kd_0Z48A5bZo_2HAPp
K1\n";
        Glide.with(this)
                .load(imageUrl)
                .placeholder(R.drawable.staticimage)
                .error(R.drawable.error)
                .into(imageView);
    }

    private void playAudio() {
        if (mediaPlayer == null) {
            mediaPlayer = new MediaPlayer();
            try {

mediaPlayer.setDataSource("https://drive.google.com/uc?export=download&id=1l2Qj
yGJrunx_32vu243JdtO5tQxiZvMy\n");
                mediaPlayer.prepare();
            } catch (IOException e) { e.printStackTrace(); Toast.makeText(this,
                "Error playing audio",
Toast.LENGTH_SHORT).show();
            }
        }
        mediaPlayer.start();
    }

    private void pauseAudio() {
        if (mediaPlayer != null && mediaPlayer.isPlaying()) { mediaPlayer.pause();
        }
    }

    private void playVideo() {
        String videoUrl =
"https://drive.google.com/uc?export=download&id=1bsMaCpogH1rr9XTQNZZOlA_oOHG77c uU\n";
        videoView.setVideoURI(Uri.parse(videoUrl)); videoView.start();
    }

    private void pauseVideo() {
        if (videoView.isPlaying()) {
            videoView.pause();
        }
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        if (mediaPlayer != null) {
            mediaPlayer.release();
            mediaPlayer = null;
        }
    }
}
```

Output:


8:41
Load Image from URL
Play Audio
Pause Audio
Play Video
Pause Video

6. Develop a photo gallery application where users can scroll through a collection of images. Use a ScrollView to display the images in a vertical scroll layout. Additionally, implement a ViewF1ipper that cycles through the images automatically or on button click. Lastly, create a tabbed interface with two tabs: "Photos" and "Videos". Each tab should display relevant content.

Solution:

Xml code:

activity_main:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.coordinatorlayout.widget.CoordinatorLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <com.google.android.material.appbar.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">

        <com.google.android.material.tabs.TabLayout
            android:id="@+id/tabLayout"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            app:tabIndicatorColor="@color/design_default_color_primary" />
    </com.google.android.material.appbar.AppBarLayout>

    <androidx.viewpager2.widget.ViewPager2
        android:id="@+id/viewPager"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:layout_behavior="@string/appbar_scrolling_view_behavior" />
</androidx.coordinatorlayout.widget.CoordinatorLayout>
```

fragment_photos:

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent" android:layout_height="match_parent">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="16dp">

        <ViewFlipper
            android:id="@+id/viewFlipper"
            android:layout_width="match_parent"
```

```
            android:layout_height="200dp"
            android:layout_gravity="center"
            android:autoStart="true"
            android:flipInterval="2000">
            <ImageView
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:src="@drawable/gfglogo" />
            <ImageView
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:src="@drawable/hackerranklogo" />
            <ImageView
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:src="@drawable/leetcodelogo" />
        </ViewFlipper>

        <Button
            android:id="@+id/nextButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Next Image" />

        <ImageView
            android:layout_width="match_parent"
            android:layout_height="200dp"
            android:layout_marginTop="16dp"
            android:src="@drawable/australia" />

        <ImageView
            android:layout_width="match_parent"
            android:layout_height="200dp"
            android:layout_marginTop="16dp"
            android:src="@drawable/brazil" />

        <ImageView
            android:layout_width="match_parent"
            android:layout_height="200dp"
            android:layout_marginTop="16dp"
            android:src="@drawable/argentina" />

        <ImageView
            android:layout_width="match_parent"
            android:layout_height="200dp"
            android:layout_marginTop="16dp"
            android:src="@drawable/india" />

    </LinearLayout>
</ScrollView>
```

Fragment_videos:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
```

```
android:layout_width="match_parent"
android:layout_height="match_parent"
```

```
    android:orientation="vertical"
    android:padding="16dp">

    <VideoView
        android:id="@+id/videoView"
        android:layout_width="match_parent"
        android:layout_height="200dp"
        android:layout_marginBottom="16dp" />



    <Button
        android:id="@+id/playVideoButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Play Video" />
</LinearLayout>
```

Java code:

MainActivity:

```
package com.example.la3q6;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.viewpager2.widget.ViewPager2;
import com.google.android.material.tabs.TabLayout;
import com.google.android.material.tabs.TabLayoutMediator;

public class MainActivity extends AppCompatActivity {

    private TabLayout tabLayout;
    private ViewPager2 viewPager;
    private TabAdapter tabAdapter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        tabLayout = findViewById(R.id.tabLayout); viewPager =
        findViewById(R.id.viewPager);

        tabAdapter = new TabAdapter(this);
        viewPager.setAdapter(tabAdapter);

        new TabLayoutMediator(tabLayout, viewPager, (tab, position) -> { if (position == 0) {
                tab.setText("Photos");
            } else {
                tab.setText("Videos");
            }
        }).attach();
    }
}
```

TabAdapter:

```
package com.example.la3q6;

import androidx.annotation.NonNull;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentActivity;
import androidx.viewpager2.adapter.FragmentStateAdapter;

public class TabAdapter extends FragmentStateAdapter {

    public TabAdapter(@NonNull FragmentActivity fragmentActivity) {
        super(fragmentActivity);
    }

    @NonNull
    @Override
    public Fragment createFragment(int position) { switch (position) {
                case 0:
                    return new PhotosFragment();
                case 1:
                    return new VideosFragment();
                default:
                    return new PhotosFragment();
        }
    }

    @Override
    public int getItemCount() {
        return 2;
    }
}
```

PhotosFragment:

```
package com.example.la3q6;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.ViewFlipper;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

public class PhotosFragment extends Fragment {

    private ViewFlipper viewFlipper;
    private Button nextButton;

    @Nullable
```

```
@Override
```

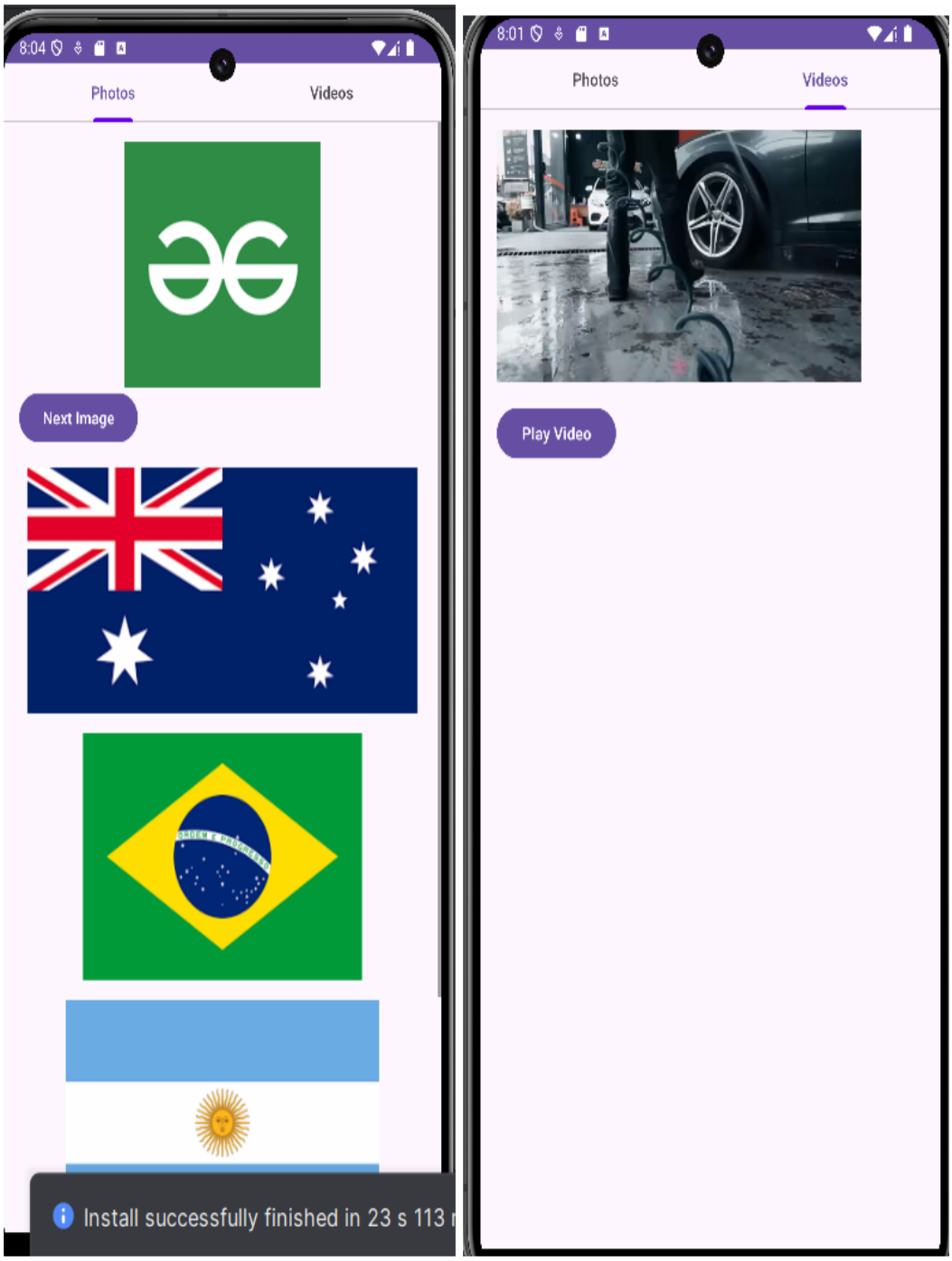
```
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container,
@Nullable Bundle savedInstanceState) {
        View view = inflater.inflate(R.layout.fragment_photos, container, false);

        viewFlipper = view.findViewById(R.id.viewFlipper); nextButton =
        view.findViewById(R.id.nextButton);

        nextButton.setOnClickListener(v -> viewFlipper.showNext());

        return view;
    }
}
```

VedioFragment:

```
package com.example.la3q6;

import android.net.Uri;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.VideoView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;


public class VideosFragment extends Fragment {

    private VideoView videoView;
    private Button playVideoButton;



    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container,
@Nullable Bundle savedInstanceState) {
        View view = inflater.inflate(R.layout.fragment_videos, container, false);

        videoView = view.findViewById(R.id.videoView); playVideoButton =
        view.findViewById(R.id.playVideoButton);

        playVideoButton.setOnClickListener(v -> playVideo());

        return view;
    }

    private void playVideo() {

        String videoUrl =
"https://drive.google.com/uc?export=download&id=1bsMaCpogH1rr9XTQNZZOlA_oOHG77c
uU\n";
```

```
            Uri videoUri = Uri.parse(videoUrl);
            videoView.setVideoURI(videoUri);
            videoView.start();
        }
}
```

Output:



7. Build a notification center application that provides different types of user feedback. Implement buttons that trigger the following:

A. An AlertDialog asking the user for confirmation (e.g., "Are you sure you want to delete this item?").

B. A Toast that displays a short success message.

C. A PopupWindow that shows additional options when a user clicks on a specific button.

Customize the appearance of each of these UI components.

Solution:

Xml code:

Activity_main:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    android:padding="16dp">

    <Button
        android:id="@+id/alertDialogButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show AlertDialog" />

    <Button
        android:id="@+id/toastButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Toast"
        android:layout_marginTop="20dp"/>

    <Button
        android:id="@+id/popupButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show PopupWindow"
        android:layout_marginTop="20dp"/>
</LinearLayout>
```

Popup_layout:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:padding="16dp"
    android:background="@android:color/white">
```

<TextView

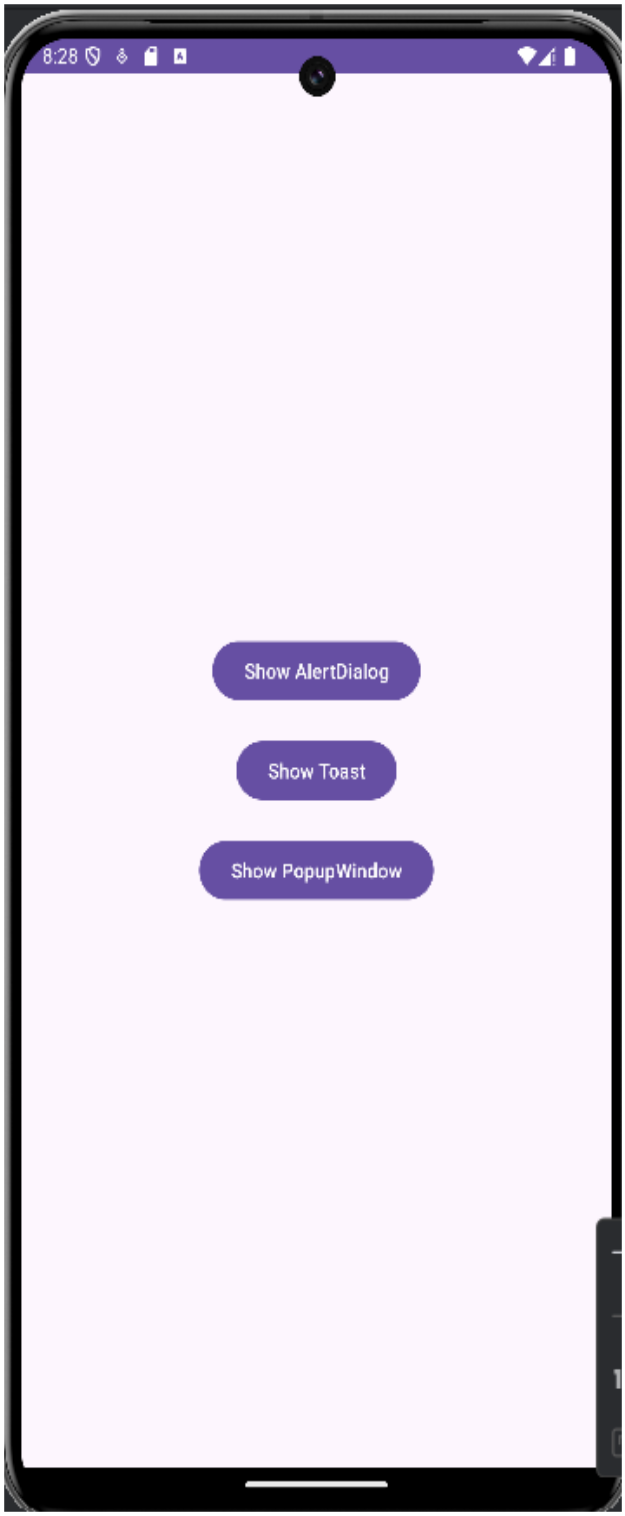
```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Additional Options"
        android:textSize="18sp"
        android:textColor="@android:color/black"/>

    <Button
        android:id="@+id/dismissPopupButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Dismiss"
        android:layout_marginTop="10dp"/>
</LinearLayout>
```

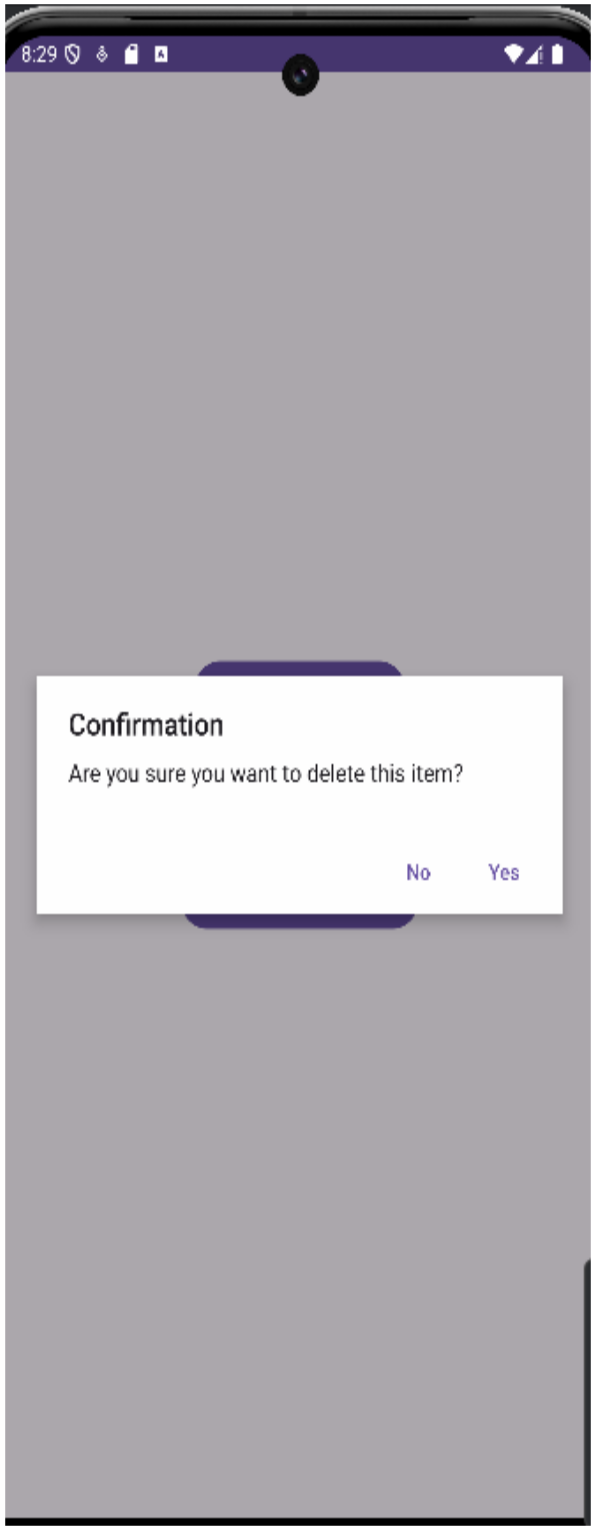
Java code:

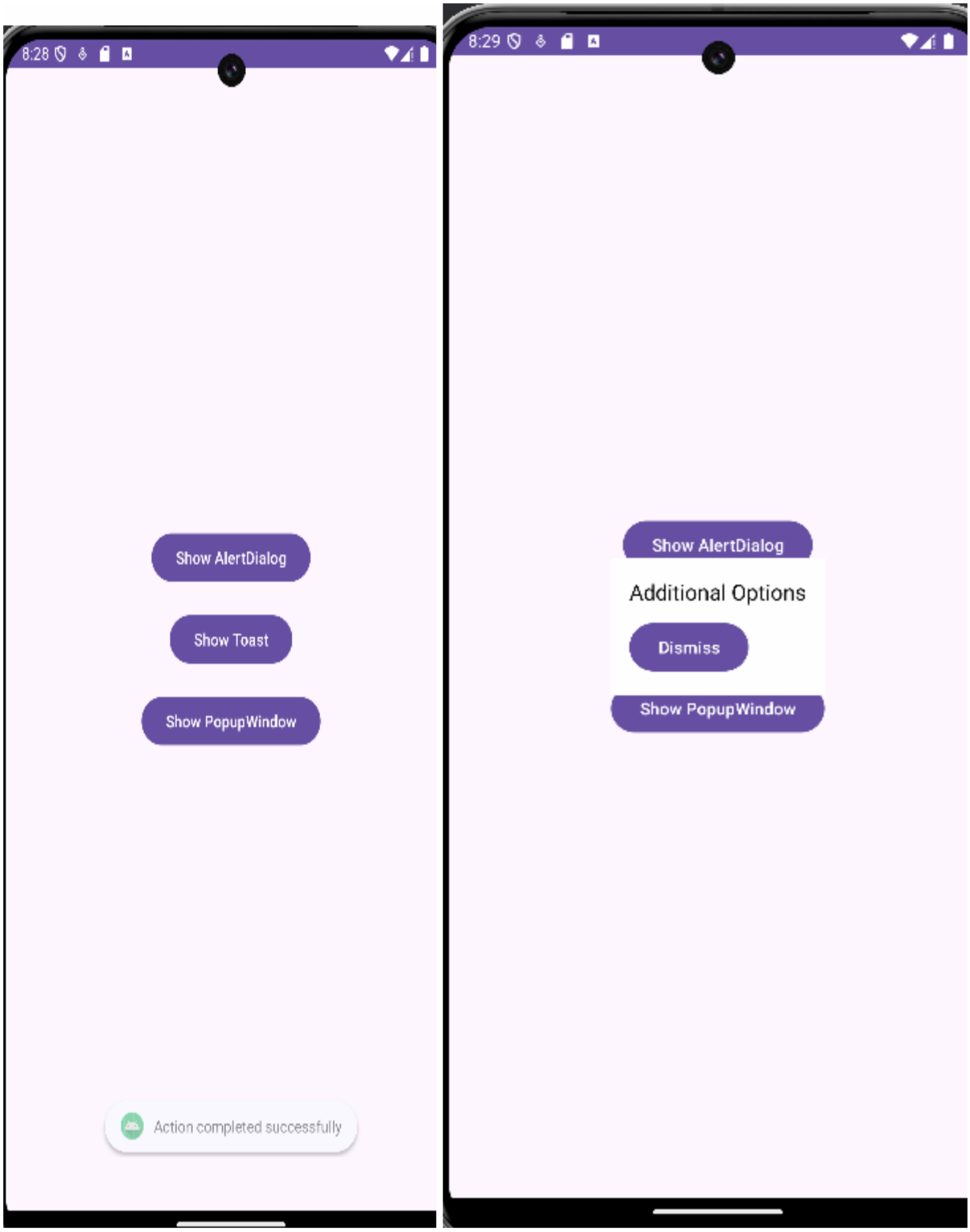
```
package com.example.la3q7;

import android.os.Bundle;
import android.view.Gravity;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.PopupWindow;
import android.widget.Toast;
import androidx.appcompat.app.AlertDialog; import
androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private Button alertDialogButton, toastButton, popupButton;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        alertDialogButton = findViewById(R.id.alertDialogButton); toastButton =
        findViewById(R.id.toastButton); popupButton = findViewById(R.id.popupButton);

        alertDialogButton.setOnClickListener(v -> showAlertDialog());

        toastButton.setOnClickListener(v -> showToast());

        popupButton.setOnClickListener(v -> showPopupWindow(v));
    }

    private void showAlertDialog() {
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        builder.setTitle("Confirmation");
        builder.setMessage("Are you sure you want to delete this item?");
        builder.setPositiveButton("Yes", (dialog, which) -> {
            Toast.makeText(this, "Item Deleted", Toast.LENGTH_SHORT).show();
        });
        builder.setNegativeButton("No", (dialog, which) -> dialog.dismiss());
```

```
        AlertDialog dialog = builder.create();
        dialog.show();
    }

    private void showToast() {
        Toast toast = Toast.makeText(this, "Action completed successfully", Toast.LENGTH_SHORT);
        toast.setGravity(Gravity.CENTER, 0, 0);
        toast.show();
    }

    private void showPopupWindow(View anchorView) { LayoutInflater
        inflater = (LayoutInflater)
getSystemService(LAYOUT_INFLATER_SERVICE);
        View popupView = inflater.inflate(R.layout.popup_layout, null);

        final PopupWindow popupWindow = new PopupWindow(
                popupView,
                ViewGroup.LayoutParams.WRAP_CONTENT,
                ViewGroup.LayoutParams.WRAP_CONTENT,
                true
        );

        popupWindow.showAtLocation(anchorView, Gravity.CENTER, 0, 0);

        Button dismissButton = popupView.findViewById(R.id.dismissPopupButton);
        dismissButton.setOnClickListener(v -> popupWindow.dismiss());
    }
}
```

Output:


8:28
Show AlertDialog
Show Toast
Show PopupWindow


8:29
Confirmation
Are you sure you want to delete this item?
No
Yes


8:28
Show AlertDialog
Show Toast
Show PopupWindow
Action completed successfully
8:29
Show AlertDialog
Additional Options
Dismiss
Show PopupWindow

8. Design a mobile application with a navigation bar at the top. The app should have an options menu that includes items like "Setings", "Profle", and "Logout". Additionally, implement a context menu that appears when a user long presses on an item in a Recycler View. Create a buton that displays a popup menu with options like "Edit" "Share" and "Delete" when clicked.

Solution:

Xml code:
Activity_main:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <androidx.appcompat.widget.Toolbar
        android:id="@+id/toolbar"
        android:layout_width="match_parent"
        android:layout_height="?attr/actionBarSize"
        android:background="?attr/colorPrimary"
        android:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar"
        app:popupTheme="@style/ThemeOverlay.AppCompat.Light" />

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/recyclerView"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_marginTop="8dp"
        app:layout_constraintTop_toBottomOf="@id/toolbar"
        app:layout_constraintBottom_toTopOf="@+id/popup_button"/>

    <Button
        android:id="@+id/popup_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Popup Menu"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/recyclerView" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Context_menu:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
```

```
    <item android:id="@+id/context_edit"
          android:title="Edit"/>
    <item android:id="@+id/context_share"
          android:title="Share"/>
    <item android:id="@+id/context_delete"
          android:title="Delete"/>
</menu>
```

Options_menu:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"> <item
          android:id="@+id/settings"
                android:title="Settings"/>
          <item android:id="@+id/profile"
                android:title="Profile"/>
          <item android:id="@+id/logout"
                android:title="Logout"/>

</menu>
```

Popup_menu:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"> <item
    android:id="@+id/edit"
                android:title="Edit"/>
          <item android:id="@+id/share"
                android:title="Share"/>
    <item android:id="@+id/delete"
          android:title="Delete"/>
</menu>
```

Java code:

MainActivity:

```
package com.example.la3q8;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity; import
androidx.appcompat.widget.PopupMenu; import
androidx.appcompat.widget.Toolbar;
import androidx.recyclerview.widget.LinearLayoutManager; import
androidx.recyclerview.widget.RecyclerView;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    private int selectedPosition;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Toolbar toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);

        RecyclerView recyclerView = findViewById(R.id.recyclerView);
        recyclerView.setLayoutManager(new LinearLayoutManager(this)); MyAdapter adapter =
        new MyAdapter(); recyclerView.setAdapter(adapter);

        registerForContextMenu(recyclerView);

        Button popupButton = findViewById(R.id.popup_button);
        popupButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                showPopupMenu(v);
            }
        });
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) { MenuInflater
        inflater = getMenuInflater();
        inflater.inflate(R.menu.options_menu, menu); return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) { int id =
        item.getItemId();

        if (id == R.id.settings) {
            Toast.makeText(this, "Settings clicked", Toast.LENGTH_SHORT).show(); return true;
        } else if (id == R.id.profile) {
            Toast.makeText(this, "Profile clicked", Toast.LENGTH_SHORT).show(); return true;
        } else if (id == R.id.logout) {
            Toast.makeText(this, "Logout clicked", Toast.LENGTH_SHORT).show(); return true;
        }

        return super.onOptionsItemSelected(item);
    }

    private void showPopupMenu(View view) { PopupMenu popup = new
        PopupMenu(this, view);
        popup.getMenuInflater().inflate(R.menu.popup_menu, popup.getMenu());

        popup.setOnMenuItemClickListener(new PopupMenu.OnMenuItemClickListener()
{
```

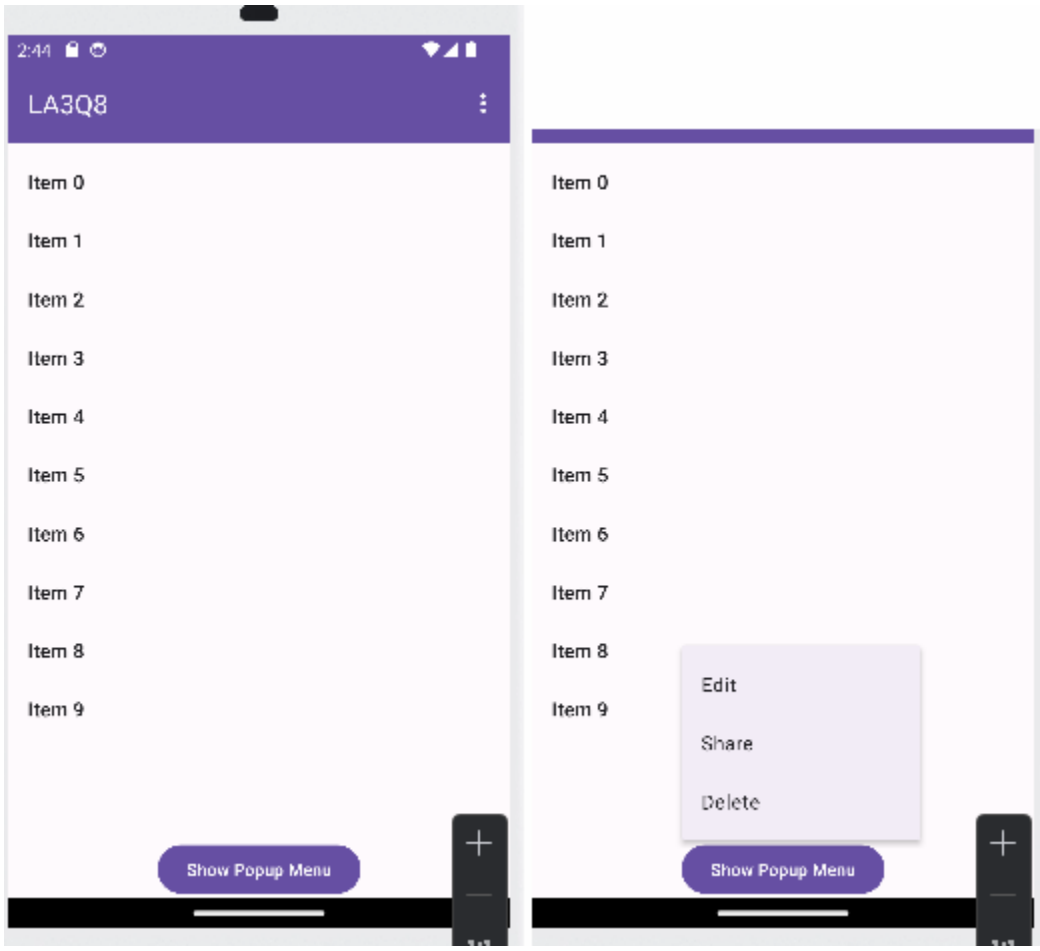
```
                @Override
                public boolean onMenuItemClick(MenuItem item) { int id =
                        item.getItemId();

                        if (id == R.id.edit) {
                                Toast.makeText(MainActivity.this, "Edit clicked",
Toast.LENGTH_SHORT).show();
                                return true;
                        } else if (id == R.id.share) {
                                Toast.makeText(MainActivity.this, "Share clicked",
Toast.LENGTH_SHORT).show();
                                return true;
                        } else if (id == R.id.delete) {
                                Toast.makeText(MainActivity.this, "Delete clicked",
Toast.LENGTH_SHORT).show();
                                return true;
                        }

                        return false;
                }
        });

        popup.show();
    }

    @Override
    public void onCreateContextMenu(@NonNull android.view.ContextMenu menu, @NonNull View v, @NonNull
android.view.ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);
        getMenuInflater().inflate(R.menu.context_menu, menu);
    }

    @Override
    public boolean onContextItemSelected(@NonNull MenuItem item) { int id =
        item.getItemId();

        if (id == R.id.context_edit) {
                Toast.makeText(this, "Context Edit clicked",
Toast.LENGTH_SHORT).show();
                return true;
        } else if (id == R.id.context_share) {
                Toast.makeText(this, "Context Share clicked",
Toast.LENGTH_SHORT).show();
                return true;
        } else if (id == R.id.context_delete) {
                Toast.makeText(this, "Context Delete clicked",
Toast.LENGTH_SHORT).show();
                return true;
        }

        return super.onContextItemSelected(item);
    }

    public void setSelectedPosition(int position) { selectedPosition =
        position;
```

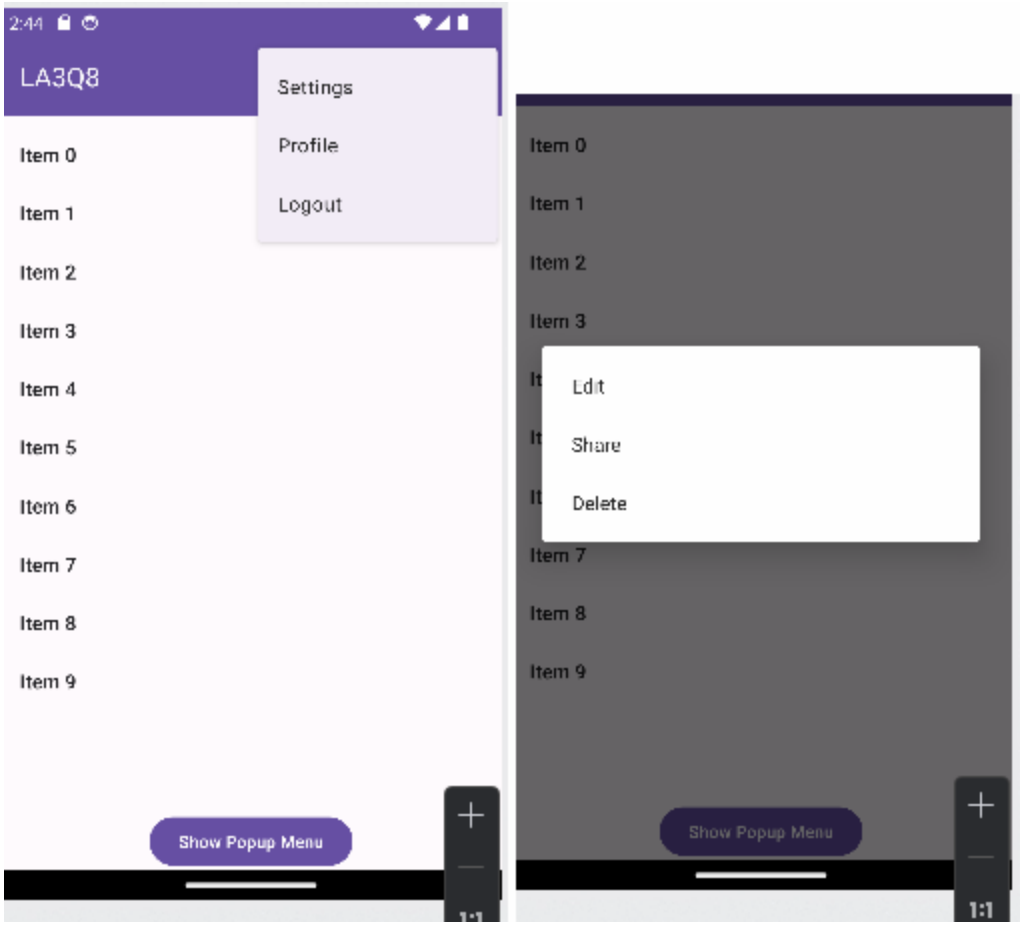
```
    }
}
```

MyAdapter:

```
package com.example.la3q8;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.recyclerview.widget.RecyclerView;

public class MyAdapter extends RecyclerView.Adapter<MyAdapter.MyViewHolder> {

    @NonNull
    @Override
    public MyViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {
        View view =
LayoutInflater.from(parent.getContext()).inflate(android.R.layout.simple_list_i
tem_1, parent, false);
        return new MyViewHolder(view);
    }

    @Override
    public void onBindViewHolder(@NonNull MyViewHolder holder, int position) {
        holder.textView.setText("Item " + position);
    }

    @Override
    public int getItemCount() {
        return 10;
    }

    public static class MyViewHolder extends RecyclerView.ViewHolder implements View.OnLongClickListener {

        TextView textView;

        public MyViewHolder(@NonNull View itemView) {
            super(itemView);
            textView = itemView.findViewById(android.R.id.text1);
            itemView.setOnLongClickListener(this);
        }

        @Override
        public boolean onLongClick(View v) {
            ((MainActivity)
v.getContext()).setSelectedPosition(getAdapterPosition()); v.showContextMenu();
            return true;
        }
    }
}
```

Output:


2:44
LA3Q8
Item 0
Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
Item 9
Show Popup Menu
Item 0
Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
Item 9
Edit
Share
Delete
Show Popup Menu



9. Create a feedback form for an e-commerce application. The form should collect the user's name (EditText), email address (EditText), rating for the service (RatingBar), and any additional comments (EditText). Validate that the name and email fields are not left empty and that the email follows a proper format. On form submission, display a confirmation message using a Toast, and reset the form fields.

Solution:

Xml code:

Activity_main:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <EditText
        android:id="@+id/name_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your name"
```

```
        android:inputType="textPersonName" />

    <EditText
        android:id="@+id/email_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your email"
        android:inputType="textEmailAddress" />

    <RatingBar
        android:id="@+id/rating_bar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:numStars="5"
        android:stepSize="1.0" />

    <EditText
        android:id="@+id/comments_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Additional comments"
        android:inputType="textMultiLine"
        android:minLines="3" />

    <Button
        android:id="@+id/feedback_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Give Feedback" />
```

```
</LinearLayout>
```

Activity_feedback:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <EditText
        android:id="@+id/name_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your name"
        android:inputType="textPersonName" />

    <EditText
        android:id="@+id/email_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter your email"
        android:inputType="textEmailAddress" />

    <RatingBar
```

android:id="@+id/rating_bar"

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:numStars="5"
        android:stepSize="1.0" />

    <EditText
        android:id="@+id/comments_input"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Additional comments"
        android:inputType="textMultiLine"
        android:minLines="3" />

    <Button
        android:id="@+id/submit_button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Submit Feedback" />
</LinearLayout>
```

Java code:

ActivityMain:

```
package com.example.la3q9;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button feedbackButton = findViewById(R.id.feedback_button);
        feedbackButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(MainActivity.this,
FeedbackActivity.class);
                startActivity(intent);
            }
        });
    }
}
```

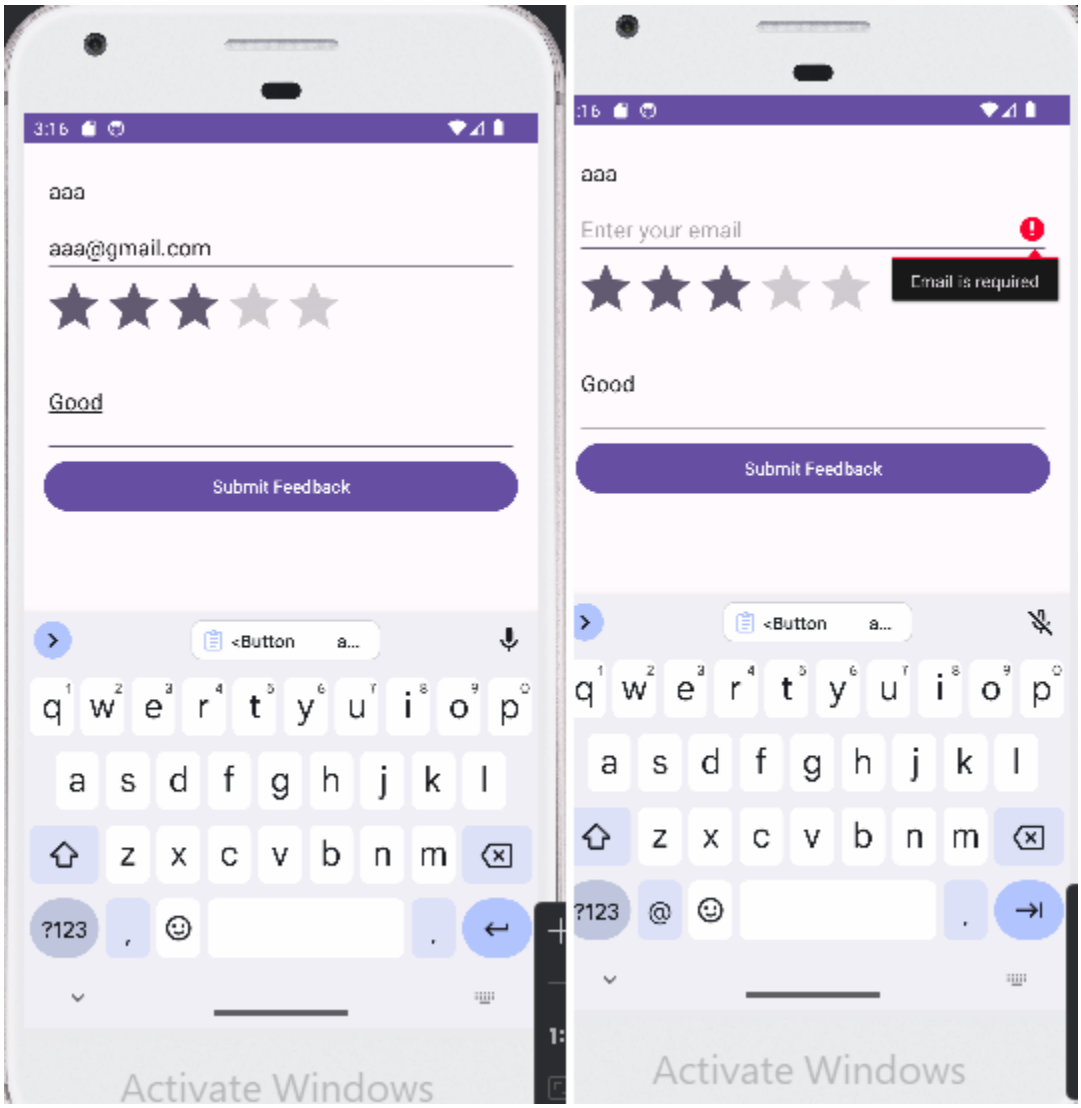
FeedbackActivity:

```
package com.example.la3q9;
```

```
import android.os.Bundle;
import android.text.TextUtils;
import android.util.Patterns;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RatingBar;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class FeedbackActivity extends AppCompatActivity {

    private EditText nameInput, emailInput, commentsInput; private RatingBar
    ratingBar; private Button submitButton;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_feedback);

        nameInput = findViewById(R.id.name_input); emailInput =
        findViewById(R.id.email_input); ratingBar = findViewById(R.id.rating_bar);
        commentsInput = findViewById(R.id.comments_input); submitButton =
        findViewById(R.id.submit_button);

        submitButton.setOnClickListener(new View.OnClickListener() { @Override
            public void onClick(View v) {
                submitFeedback();
            }
        });
    }

    private void submitFeedback() {
        String name = nameInput.getText().toString().trim(); String email =
        emailInput.getText().toString().trim(); String comments =
        commentsInput.getText().toString().trim(); float rating = ratingBar.getRating();

        if (TextUtils.isEmpty(name)) {
            nameInput.setError("Name is required");
            return;
        }

        if (TextUtils.isEmpty(email)) {
            emailInput.setError("Email is required");
            return;
        }

        if (!Patterns.EMAIL_ADDRESS.matcher(email).matches()) {
            emailInput.setError("Please enter a valid email"); return;
        }
```

```
            Toast.makeText(this, "Thank you for your feedback!",
Toast.LENGTH_SHORT).show();

            nameInput.setText("");
            emailInput.setText("");
            ratingBar.setRating(0);
            commentsInput.setText("");
        }
}
```

Output:



10. Design a reservation form for booking a table at a restaurant. The form should have fields for selecting the number of guests (NumberPicker)s date (DatePicker), time (TimePicker), and any special requests (EditText). Once all details are filled out, the user should click a "Reserve" button that displays the entered details in a confirmation AlertDialog. The form should reset after the reservation is confirmed.

Solution:

Xml code:

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:gravity="center"
        android:padding="16dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Number of Guests"
            android:textSize="18sp"
            android:layout_marginBottom="8dp" />

        <NumberPicker
            android:id="@+id/numberPickerGuests"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Select Date"
            android:textSize="18sp"
            android:layout_marginTop="16dp"
            android:layout_marginBottom="8dp" />

        <DatePicker
            android:id="@+id/datePicker"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:calendarViewShown="true" />

        <TextView
            android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
android:text="Select Time"
```

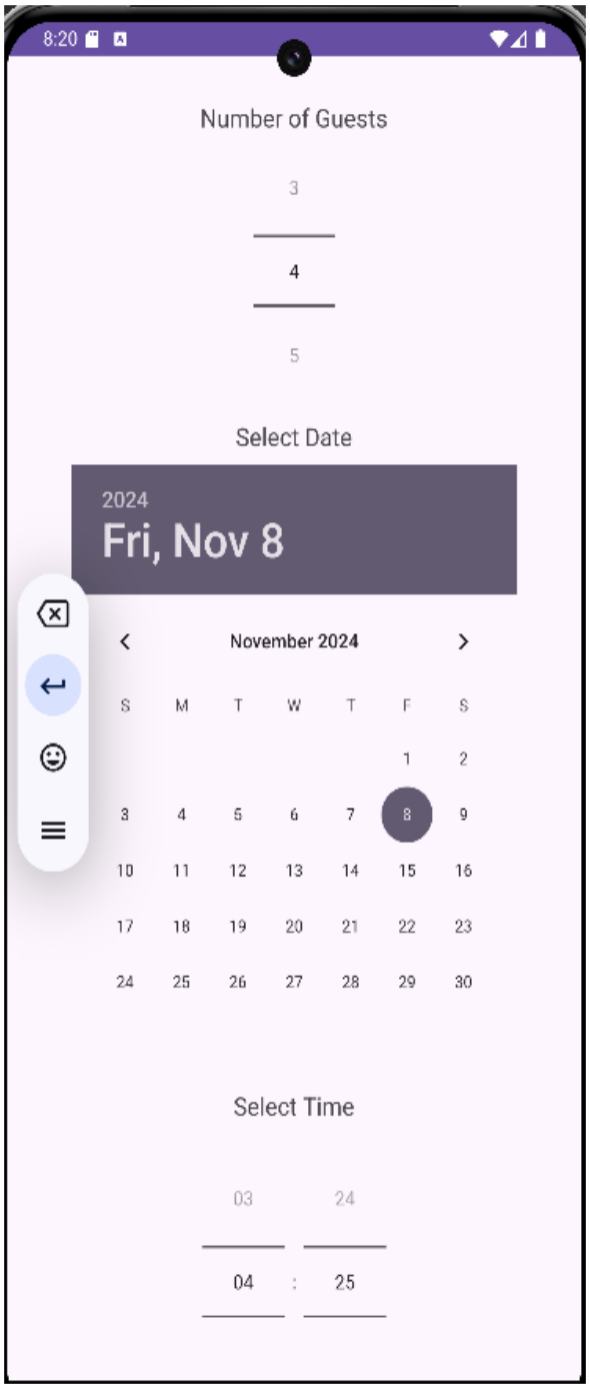
```
            android:textSize="18sp"
            android:layout_marginTop="16dp"
            android:layout_marginBottom="8dp" />

        <TimePicker
            android:id="@+id/timePicker"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:timePickerMode="spinner" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Special Requests"
            android:textSize="18sp"
            android:layout_marginTop="16dp"
            android:layout_marginBottom="8dp" />

        <EditText
            android:id="@+id/editTextSpecialRequests"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Any special requests"
            android:minLines="3"
            android:inputType="textMultiLine" />

        <Button
            android:id="@+id/reserve_button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Reserve"
            android:layout_marginTop="24dp" />
    </LinearLayout>
</ScrollView>
```

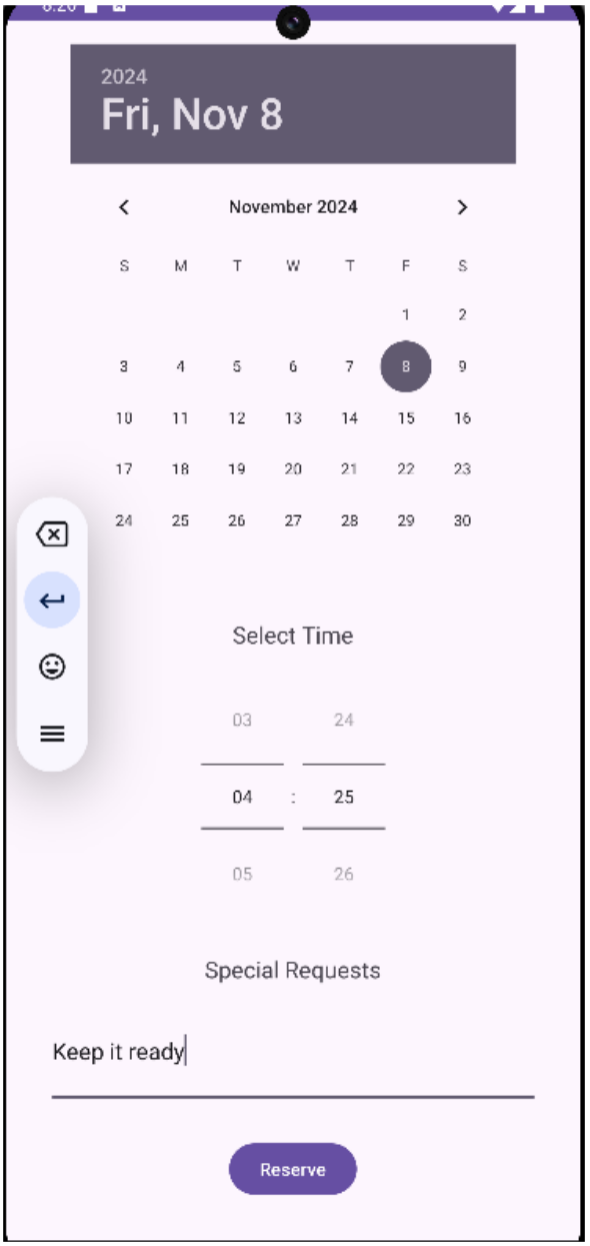
Java code:

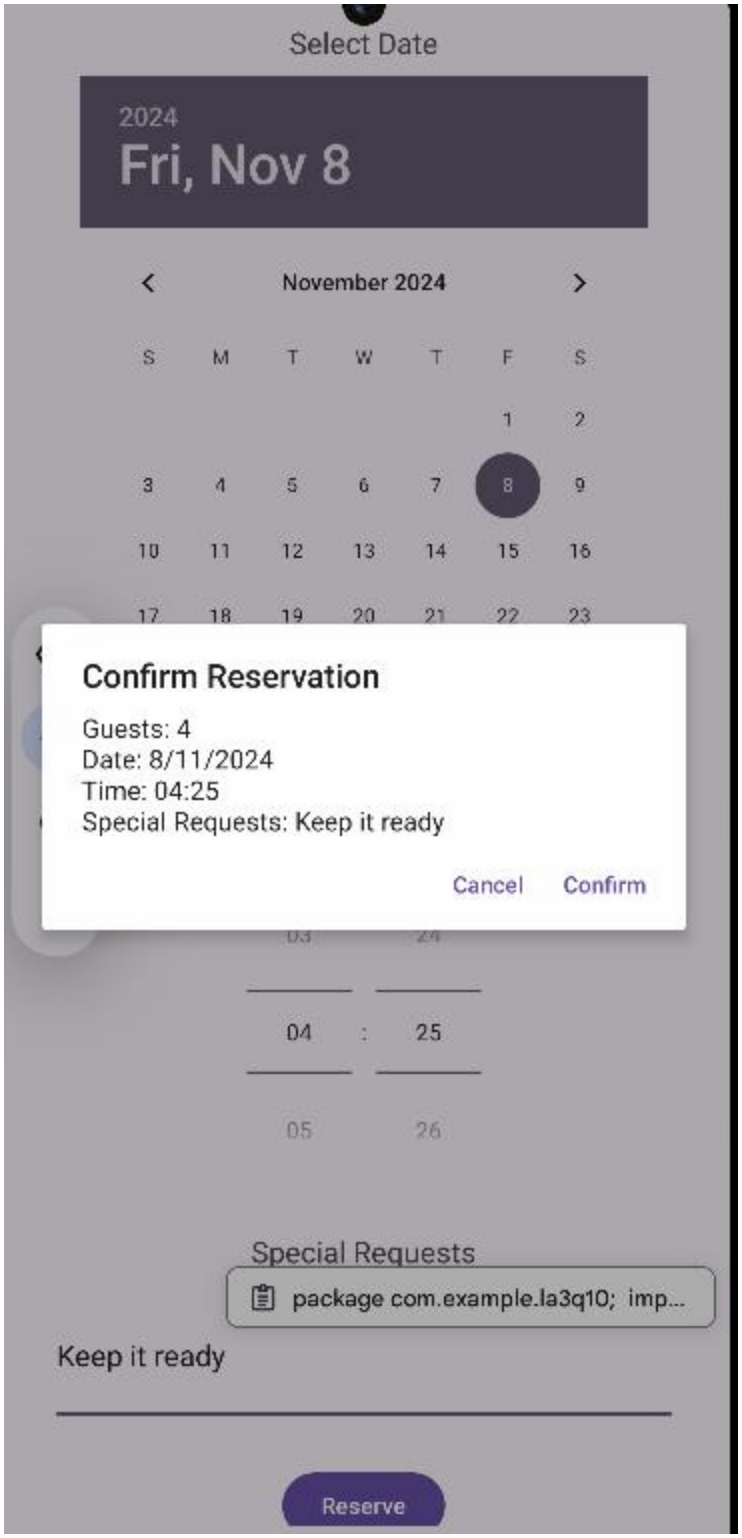
```
package com.example.la3q10;

import android.os.Bundle;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.NumberPicker;
import android.widget.TimePicker;

import androidx.appcompat.app.AlertDialog; import
androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private NumberPicker numberPickerGuests; private
    DatePicker datePicker; private TimePicker timePicker;
    private EditText editTextSpecialRequests; private Button
    buttonReserve;
```

```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main); initializeUI();
        setupNumberPicker();
        timePicker.setIs24HourView(true);
        buttonReserve.setOnClickListener(v -> confirmReservation());
    }

    private void initializeUI() {
        numberPickerGuests = findViewById(R.id.numberPickerGuests); datePicker =
        findViewById(R.id.datePicker); timePicker = findViewById(R.id.timePicker);
        editTextSpecialRequests = findViewById(R.id.editTextSpecialRequests); buttonReserve =
        findViewById(R.id.reserve_button);
    }

    private void setupNumberPicker() {
        numberPickerGuests.setMinValue(1);
        numberPickerGuests.setMaxValue(20);
    }

    private void confirmReservation() {
        int numberOfGuests = numberPickerGuests.getValue(); int day =
        datePicker.getDayOfMonth(); int month = datePicker.getMonth() + 1;
        int year = datePicker.getYear();
        int hour = timePicker.getHour();
        int minute = timePicker.getMinute();
        String specialRequests =
editTextSpecialRequests.getText().toString().trim();

        String reservationDetails = "Guests: " + numberOfGuests + "\n" +
                "Date: " + day + "/" + month + "/" + year + "\n" +
                "Time: " + String.format("%02d:%02d", hour, minute) + "\n" +
                "Special Requests: " + (specialRequests.isEmpty() ? "None" :
specialRequests);

        new AlertDialog.Builder(this)
                .setTitle("Confirm Reservation")
                .setMessage(reservationDetails)
                .setPositiveButton("Confirm", (dialog, which) -> resetForm())
                .setNegativeButton("Cancel", null)
                .show();
    }

    private void resetForm() {
        numberPickerGuests.setValue(1);
        datePicker.updateDate(datePicker.getYear(), datePicker.getMonth(),
datePicker.getDayOfMonth());
        timePicker.setHour(12);
        timePicker.setMinute(0);
        editTextSpecialRequests.setText("");
    }
}
```

Output:


8:20
Number of Guests
3
4
5
Select Date
2024
Fri, Nov 8
November 2024
S M T W T F S
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
Select Time
03 24
04 : 25


2024
Fri, Nov 8
November 2024
S M T W T F S
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
Select Time
03 24
04 : 25
05 26
Special Requests
Keep it ready
Reserve


Select Date
2024
Fri, Nov 8
November 2024
S M T W T F S
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
Confirm Reservation
Guests: 4
Date: 8/11/2024
Time: 04:25
Special Requests: Keep it ready
Cancel
Confirm
04 : 25
Special Requests
package com.example.la3q10; imp...
Keep it ready
Reserve